

CLAIM AMENDMENTS

1. (Currently Amended) A shut-down circuit configured for use with an electronic ballast coupled to a lamp in a control path, the circuit comprising:

a device for sensing electrical energy associated with the control path; [[and]]
an electrical circuit for shutting down the ballast in the event that the sensed energy contains high-frequency noise indicative of arcing, including arcing caused by lamp installation or removal; and

electronic componentry to disable the electrical circuit for shutting down the ballast, during initial energization of the lamp, with a time constant independent of the circuit for shutting down.

2. – 4. (Canceled)

5. (Previously Presented) The circuit of claim 1, wherein the device for sensing the electrical energy associated with the control path is an optical isolator.

6. – 9. (Canceled)

10. (Currently Amended) The circuit of Claim 1, wherein the electrical circuit includes a phase-locked loop coupled to a ~~low-pass~~ DC blocking filter, whereby a shut-down signal is produced when the sensed energy's frequency ~~exceeds~~ varies with a rate in excess of a predetermined threshold.

11. – 24. (Canceled)

25. (New) An abnormal load condition detection circuit configured for use with an electronic ballast, the circuit comprising:

a device for sensing the electrical energy associated with a control path;
a series pass switch element having a switch output that acts as a one-way diode when not actuated, and as a negligible resistance when actuated;

a coupling circuit to transfer energy from sensing device element and place it in series with said switch output, whereby a rectified DC voltage is present at a node when load path electrical energy is present; and

a high pass filter for actuating the series pass switch element when the harmonic content of the electrical energy is above a first predetermined threshold, thus reducing the DC voltage present at the node.

26. (New) The circuit of claim 25, including componentry to shut down the ballast when the voltage present at the node is below a second predetermined threshold.

27. (New) The circuit of claim 26, further including a delay means to suppress the said componentry to shut down upon initial energization of the ballast, with a preset delay time independent of any time constant within the said abnormal load detection circuit.

28. (New) The circuit of claim 25, wherein the device for sensing the electrical energy associated with the load path is an isolation transformer.

29. (New) The circuit of claim 25, wherein the device for sensing the electrical energy associated with the load path is an optical isolator.

30. (New) An abnormal load condition detection circuit configured for use with an electronic ballast, the circuit comprising:

a device for sensing the electrical energy associated with a control path;
a high pass filter whose input is connected to the device for sensing; and
a means for combining the device and filter outputs to activate a fault signal output indicating the presence of too little or too much energy above the fundamental frequency; or insufficient total energy.

31. (New) The circuit of claim 30, including componentry to shut down the ballast when the fault signal output is active.

32. (New) The circuit of claim 31, further including a delay means to suppress the said fault signal output upon initial energization of the ballast, with a preset delay time independent of any time constant within the said abnormal load detection circuit.